

# **Programme Specifications**

## **B.Tech. Programme**



**Programme: Aerospace Engineering**  
**Department: Automotive and Aeronautical**  
**Engineering**

**Faculty of Engineering & Technology**  
Ramaiah University of Applied Sciences University House, New BEL Road, MSR  
Nagar, Bangalore– 560054 [www.msruas.ac.in](http://www.msruas.ac.in)

## PROGRAMME SPECIFICATIONS: AEROSPACE ENGINEERING

<b>Faculty</b>	Engineering and Technology (FET)
<b>Department</b>	Automotive and Aeronautical Engineering
<b>Programme</b>	Aerospace Engineering
<b>Dean of Faculty</b>	Prof. H. K. Narahari
<b>Head of Department</b>	Prof. Raja R

1	<b>Title of the Award</b> B.Tech. in Aerospace Engineering
2	<b>Modes of Study</b> Full Time
3	<b>Awarding Institution /Body</b> M.S.Ramaiah University of Applied Sciences
4	<b>Joint Award</b> Not Applicable
5	<b>Teaching Institution</b> Faculty of Engineering and Technology, M.S.Ramaiah University of Applied Sciences
6	<b>Date of Programme Specifications</b> February 2017
7	<b>Date of Programme Approval by the Academic Council of MSRUAS</b> April 2017
8	<b>Next Review Date:</b> March 2021
9	<b>Programme Approving Regulating Body and Date of Approval</b> --
10	<b>Programme Accredited Body and Date of Accreditation</b> --
11	<b>Grade Awarded by the Accreditation Body</b> --
12	<b>Programme Accreditation Validity</b> --
13	<b>Programme Benchmark</b> N/A
14	<b>Rationale for the Programme</b> Aerospace engineering is one of the specialized disciplines of engineering. Designing and Aerospace sector in India has seen robust growth and most big OEMs and service sector giants can be found in here. India is home to government organisations like Defence Research and Development Organisation (DRDO), Aeronautical Development Agency (ADA), Council for Scientific and Industrial Research (CSIR), Hindustan Aeronautics Limited (HAL), and private enterprises like Boeing, Airbus, General Electric, Pratt and Whitney, SNECMA, Honeywell, Goodrich Aerospace. Some are involved in Aerospace research and development, while others provide engineering services. Their already high annual average growth rate is likely to be boosted by the 'off-set' clause included by Government of India in all major aerospace transaction. High competitiveness in the airline sector has forced the manufacturers to not only continuously improve their product but also introduce cutting edge technology in their products. Aerospace industry traditionally has pushed technological boundaries in a bid to meet the ever increasing demand for faster, safer and cheaper travel. With the available experienced person power and infrastructure in the areas of fluid mechanics, structural engineering and propulsion, the University will be able to support their requirement for advanced products. Aerospace is a highly interdisciplinary subject where there is interaction between aerodynamicists, structural engineers, manufacturers and electronic engineers. In this situation, University gives an ideal platform for the students as they are exposed to different disciplines and thereby increase their breadth of knowledge in aeronautics. The department is staffed with professors with extensive experience in national aerospace projects, excellent infrastructure and has developed a reputation amongst students, parents, industry and research sponsors. The faculty of engineering and technology plans for producing Aerospace engineers who can compete with students from the best universities in the world.

15	<b>Programme Mission</b> The purpose of the programme is creation of innovative problem solvers in multi-disciplinary settings, entrepreneurs and leaders applying the knowledge, understanding, cognitive abilities, practical skills and transferrable skills gained through systematic, flexible and rigorous learning in the chosen academic domain
16	<b>Graduate Attributes</b> <ol style="list-style-type: none"><li>1. Ability to apply knowledge of mathematics, science, and Engineering fundamentals to solve complex problems in engineering</li><li>2. Ability to analyse engineering problems, interpret data and arrive at meaningful conclusions involving mathematical inferences</li><li>3. Ability to design an engineering system, component, or process to meet desired needs considering public health and safety, and the cultural, societal, and environmental considerations</li><li>4. Ability to understand and solve complex engineering problems by conducting experimental investigations</li><li>5. Ability to apply appropriate tools and techniques and understand utilization of resources appropriately to complex engineering activities</li><li>6. Ability to understand the effect of engineering solutions on legal, cultural, social and public health and safety aspects</li><li>7. Ability to develop sustainable solutions and understand their effect on society and environment</li><li>8. Ability to apply ethical principles to engineering practices and professional responsibilities</li><li>9. Ability to work as a member of a team, to plan and to integrate knowledge of various engineering disciplines and to lead teams in multi-disciplinary settings</li><li>10. Ability to make effective oral presentations and communicate technical ideas to a Broad audience using written and oral means</li><li>11. Ability to lead and manage multidisciplinary teams by applying engineering and management principles</li><li>12. Ability to adapt to the changes and advancements in technology and engage in independent and life-long learning</li></ol>

17	The programme goal is to produce graduates with critical, analytical and problem solving skills, and ability to think independently, to pursue a career in Aerospace Engineering.
18	<p><b>Programme Objectives</b></p> <p>The Aerospace Engineering degree programme will impart knowledge of various aerospace systems and their subsystems; enhance the understanding of underlying engineering principles that govern the behaviour of aerospace systems; teach analytical modeling, simulation and analysis to study the behaviour of different aerospace systems; provide the skills to design, build and test sub-systems. It also trains students on personal development and interactive skills with a feel for society.</p> <p>The objectives of the programme are:</p> <ol style="list-style-type: none"><li>1. To impart knowledge on aerospace systems and their sub-systems</li><li>2. To facilitate the understanding of underlying engineering principles of aerospace systems to explain their construction and working</li><li>3. To model, simulate and analyze the behaviour of aerospace sub-systems systems to predict and improve their performance</li><li>4. To design and develop prototypes of aerospace sub-systems to meet the specific needs</li><li>5. To instrument and test of aerospace sub-systems for validation</li><li>6. To train students on commercial software tools to design, model, simulate aerospace sub-systems</li><li>7. To train students on design and fabrication of aerospace sub-systems</li><li>8. To educate on professional ethics, economics, social sciences and interpersonal skills relevant to professional practice</li><li>9. To provide a general perspective on lifelong learning and opportunities for a career in industry, business and commerce</li></ol>

19	<p><b>Programme Intended Learning Outcomes</b></p> <p>The intended learning outcomes are listed under four headings:</p> <ol style="list-style-type: none"> <li>1. Knowledge and Understanding, 2. Cognitive skills 3. Practical skills and</li> <li>4. Capability / Transferable skills.</li> </ol> <p><b>Knowledge and Understanding</b></p> <p>After undergoing this programme, a student will be able to:</p> <p>KU1: Identify and describe the various systems of relevance to aerospace engineering</p> <p>KU2: Explain the underlying science and engineering principles that govern the systems / processes relevant to aerospace engineering</p> <p>KU3: Compare and contrast newer technologies over the existing technologies</p> <p>KU4: Collect, classify and interpret information relevant to aerospace engineering</p> <p><b>Cognitive Skills</b></p> <p>After undergoing this programme, a student will be able to-</p> <p>CS1: Design Aerospace systems / processes based on the desired function</p> <p>CS2: Model and simulate aerospace systems to analyze the behavior</p> <p>CS3: Modify the existing design/processes to meet newer requirements</p> <p>CS4: Apply science and engineering principles to evaluate performance of aerospace systems and answer “ what if” questions</p> <p><b>Practical Skills</b></p> <p>After undergoing this programme, a student will be able to-</p> <p>PS1: Manufacture/Fabricate aerospace components and assemble the system</p> <p>PS2: Instrument a system and test for its performance</p> <p>PS3: Operate and maintain aerospace system for efficient and safe operations</p> <p>PS4: Program /Control aerospace system to deliver desired level of performance</p> <p><b>Capability Skills / Transferrable Skills</b></p> <p>After undergoing the programme, a student will be able to-</p> <p>TS1: Manage information, develop technical reports and make presentations</p> <p>TS2: Build, Manage and Lead a team to successfully complete a project and Communicate across teams and organizations to achieve professional objectives</p> <p>TS3: Work under various constraints to meet project targets</p> <p>TS4: Adopt to the chosen profession by continuously upgrading his/her knowledge and understanding through Life-long Learning philosophy</p>
----	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

20	<b>Programme Structure</b>							
	<b>Semester -1, Physics Cycle[AU,AS,ME, E&amp;C Branches]</b>							
	S.No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
	1	BSC101A	Engineering Mathematics-1	3	2	0	4	100
	2	BSC102B	Engineering Physics	3	2	0	4	100
	3	ESC101A	Elements of Mechanical Engineering	3	0	0	3	100
	4	ESC102A	Elements of Electronics Engineering	3	2	0	4	100
	5	ESC103A	Engineering Drawing	1	0	4	3	100
	6	BSC103B	Engineering Physics Laboratory	0	0	2	1	50
	7	ESC104A	Basic Workshop Practice	0	0	2	1	50
	8	ESC105A	Basic Electronics Laboratory	0	0	2	1	50
	9	HSC101B	Sociology and Elements of Indian History	2	0	0	2	50
	10	MCC101B	Technical Communication and Soft Skills	2	0	0	2	50
	<b>Total</b>			<b>17</b>	<b>6</b>	<b>10</b>	<b>25</b>	<b>750</b>
	<b>Total number of contact hours per week</b>				<b>33 hours</b>			
	<b>Number of credits can be registered</b>				<b>Minimum</b>	<b>20</b>	<b>Maximum</b>	<b>25</b>
	<b>Semester -2</b>							
	S. No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
	1	BSC104A	Engineering Mathematics-2	3	2	0	4	100
	2	BSC105B	Engineering Chemistry	4	0	0	4	100
3	ESC106A	Construction Materials and Engineering Mechanics	3	2	0	4	100	
4	ESC107A	Elements of Electrical Engineering	3	2	0	4	100	
5	ESC108A	Elements of Computer Science and Engineering	3	2	0	4	100	
6	ESC109A	Computer Programming Laboratory	0	0	2	1	50	
7	BSC106B	Engineering Chemistry Laboratory	0	0	2	1	50	
8	ESC110A	Basic Electrical Laboratory	0	0	2	1	50	
9	HSC102B	Business Communication and Presentation Skills	2	0	0	2	50	
10	MCC102A	Environmental Studies	2	0	0	2	50	
<b>Total</b>			<b>20</b>	<b>8</b>	<b>6</b>	<b>27</b>	<b>750</b>	
<b>Total number of contact hours per week</b>				<b>34 hours</b>				
<b>Number of credits can be registered</b>				<b>Minimum</b>	<b>22</b>	<b>Maximum</b>	<b>27</b>	

**Semester -1, Chemistry Cycle[CE, CSE and EEE Branches]**

S. No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	BSC101A	Engineering Mathematics-1	3	2	0	4	100
2	BSC105B	Engineering Chemistry	4	0	0	4	100
3	ESC106A	Construction Materials and Engineering Mechanics	3	2	0	4	100
4	ESC107A	Elements of Electrical Engineering	3	2	0	4	100
5	ESC108A	Elements of Computer Science and Engineering	3	2	0	4	100
6	ESC109A	Computer Programming Laboratory	0	0	2	1	50
7	BSC106B	Engineering Chemistry Laboratory	0	0	2	1	50
8	ESC110A	Basic Electrical Laboratory	0	0	2	1	50
9	HSC102B	Business Communication and Presentation Skills	2	0	0	2	50
10	MCC102A	Environmental Studies	2	0	0	2	50
<b>Total</b>			<b>20</b>	<b>8</b>	<b>6</b>	<b>27</b>	<b>750</b>
<b>Total number of contact hours per week</b>			<b>34 hours</b>				
<b>Number of credits can be registered</b>			<b>Minimum</b>	<b>22</b>	<b>Maximum</b>	<b>27</b>	

**Semester -2**

S.No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	BSC104A	Engineering Mathematics-2	3	2	0	4	100
2	BSC102B	Engineering Physics	3	2	0	4	100
3	ESC101A	Elements of Mechanical Engineering	3	0	0	3	100
4	ESC102A	Elements of Electronics Engineering	3	2	0	4	100
5	ESC103A	Engineering Drawing	1	0	4	3	100
6	BSC103B	Engineering Physics Laboratory	0	0	2	1	50
7	ESC104A	Basic Workshop Practice	0	0	2	1	50
8	ESC105A	Basic Electronics Laboratory	0	0	2	1	50
9	HSC101B	Sociology and Elements of Indian History	2	0	0	2	50
10	MCC101B	Technical Communication and Soft Skills	2	0	0	2	50
<b>Total</b>			<b>17</b>	<b>6</b>	<b>10</b>	<b>25</b>	<b>750</b>
<b>Total number of contact hours per week</b>			<b>33 hours</b>				
<b>Number of credits can be registered</b>			<b>Minimum</b>	<b>20</b>	<b>Maximum</b>	<b>25</b>	

**Semester-3**

S.No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	BSC207A	Engineering Mathematics 3	3	2	0	4	100
2	ESC201A	Material Science	3	0	0	3	100
3	ASC201A	Introduction to Aerospace Systems	4	0	0	4	100
4	MEC202A	Engineering Thermodynamics	3	0	0	3	100
5	AUC203A	Fluid Mechanics and Machines	3	2	0	4	100
6	ESC202A	Material Science Lab	0	0	2	1	50
7	AUC204A	Fluid Mechanics and Machines Lab	0	0	2	1	50
8	AUC205A	3D Modeling and Machine Drawing	0	0	4	2	100
9	MCC201B	Human Rights and Legislative Procedures	2	0	0	2	50
10	ASC202A	Aero modelling Laboratory	0	0	2	1	50
<b>Total</b>			<b>18</b>	<b>4</b>	<b>10</b>	<b>25</b>	<b>800</b>
<b>Total Number of Contact Hours per week</b>			<b>32</b>				
<b>Number of Credits can be registered</b>			<b>Minimum</b>	<b>20</b>	<b>Maximum</b>	<b>25</b>	

**Semester-4**

S.No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	BSC208A	Engineering Mathematics 4	3	2	0	4	100
2	ASC203A	Aerodynamics - I	3	0	0	3	100
3	MEC201A	Strength of Materials	3	2	0	4	100
4	AUC206A	Manufacturing Processes for Automotive and Aerospace Systems	4	0	0	4	100
5	ASC205A	Theory of Machines	3	2	0	4	100
6	AUC207A	Manufacturing Processes Laboratory	0	0	2	1	50
7	HSC201A	Law for Engineers	2	0	0	2	50
8	ASC204A	Aerodynamics I Laboratory	0	0	2	1	50
9	MEC204A	Strength of Materials Lab	0	0	2	1	50
10	ASC206A	Kinematics and Dynamics Simulation Laboratory	0	0	2	1	50
<b>Total</b>			<b>18</b>	<b>6</b>	<b>8</b>	<b>25</b>	<b>750</b>
<b>Total Number of Contact Hours per week</b>			<b>32</b>				
<b>Number of Credits can be registered</b>			<b>Minimum</b>	<b>20</b>	<b>Maximum</b>	<b>25</b>	



<b>Semester- 5</b>							
S.No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	ASC301A	Aerospace Structures - I	3	2	0	4	100
2	ASC303A	Aerodynamics - II	3	0	0	3	100
3	MEC303A	Control Systems Engineering	4	0	0	4	100
4	HSC301A	Economics for Engineers	2	0	0	2	50
5	ASC305A	Aerospace Propulsion- I	3	2	0	4	100
6	ASC306A	Aircraft Performance	3	0	0	3	100
7	ASC302A	Aerospace Structures Laboratory	0	0	2	1	50
8	ASC304A	Aerodynamics - II Laboratory	0	0	2	1	50
9	AUC309A	Machining Practices	0	0	2	1	50
10	MEC308A	Control Systems Laboratory	0	0	2	1	50
<b>Total</b>			<b>18</b>	<b>4</b>	<b>8</b>	<b>24</b>	<b>750</b>
<b>Total Number of Contact Hours per week</b>			<b>30</b>				
<b>Number of Credits can be registered</b>			<b>Minimum</b>	<b>19</b>	<b>Maximum</b>	<b>24</b>	

<b>Semester-6</b>							
S. No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	ASC307A	Aerospace Structures - II	3	2	0	4	100
2	AUC403A	Finite Elements Analysis	3	2	0	4	100
3	ASC308A	Aircraft Instrumentation and Avionics	3	0	0	3	100
4	ASC309A	Aerospace Vibration	3	2	0	4	100
5	ASC311A	Aircraft Stability and Control	3	0	0	3	100
6	ASC310A	Vibration Laboratory	0	0	2	1	50
7	ASC312A	CAE Practices for Aerospace Applications	0	0	2	1	50
8	ASCP31A	Project work -1 / Internship	0	0	16	8	100
<b>Total</b>			<b>16</b>	<b>4</b>	<b>20</b>	<b>28</b>	<b>700</b>
<b>Total Number of Contact Hours per week</b>			<b>40</b>				
<b>Number of Credits can be registered</b>			<b>Minimum</b>	<b>23</b>	<b>Maximum</b>	<b>28</b>	

Note: Internship can be in any Industry, Business, University or Research organization in India or abroad.

**Semester-7**

S. No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	ASC401A	Experimental Stress Analysis	3	0	0	3	100
2	ASC402A	Computational Fluid Dynamics	3	2	0	4	100
3	ASC404A	Aerospace Propulsion II	3	2	0	4	100
4	ASEXXXA	Professional Core Elective -1	4	0	0	4	100
5	OEC401A	Open Elective -1	3	0	0	3	100
6	OEC402A	Open Elective -2	3	0	0	3	100
7	ASC403A	Computational Fluid Dynamics Laboratory	0	0	2	1	50
8	ASC405A	Aerospace Propulsion Laboratory	0	0	2	1	50
9	ASC406A	Seminar	0	0	2	1	50
<b>Total</b>			<b>19</b>	<b>4</b>	<b>6</b>	<b>24</b>	<b>750</b>
<b>Total Number of Contact Hours per week</b>			<b>29</b>				
<b>Number of Credits can be registered</b>			<b>Minimum</b>	<b>19</b>	<b>Maximum</b>	<b>24</b>	

**Semester-8**

S. No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	ASEXXXA	Professional Core Elective -2	4	0	0	4	100
2	OEC403A	Open Elective -3	3	0	0	3	100
3	OEC404A	Open Elective -4	3	0	0	3	100
4	ASCP42A	Project Work -2	0	0	24	12	100
<b>Total</b>			<b>10</b>	<b>0</b>	<b>24</b>	<b>22</b>	<b>400</b>
<b>Total Number of Contact Hours per week</b>			<b>34</b>				
<b>Number of credits can be registered</b>			<b>Minimum</b>	<b>17</b>	<b>Maximum</b>	<b>22</b>	

**Professional Core Electives:**

Professional Core Elective		
1. Semester 7 Group		
1	ASE401A	Modern Combat Aircraft
2	ASE402A	Flight Dynamics
3	ASE403A	Soft Computing
4	AUE404A	Light Weight and Novel Materials

Professional Core Elective		
2. Semester 8 Group		
1	ASE404A	Unmanned Air Vehicles
2	ASE405A	Rocket Launch Vehicles
3	ASE406A	Aircraft Design
4	MEE409A	Fatigue and Fracture Mechanics

	<p><b>Open Electives:</b> A number of electives from faculty of engineering, management and commerce, art and design, hospitality management and catering technology, pharmacy, dental sciences will be announced one semester prior to the scheduled semester.</p>
21	<p><b>Course Delivery</b> As per the Time Table</p>
22	<p><b>Teaching and Learning Methods</b></p> <ol style="list-style-type: none"> <li>1. Face to Face Lectures using Audio-Visuals</li> <li>2. Workshops, Group Discussions ,Debates, Presentations</li> <li>3. Demonstrations</li> <li>4. Guest Lectures</li> <li>5. Laboratory work/Fieldwork/Workshop</li> <li>6. Industry Visit</li> <li>7. Seminars</li> <li>8. Group Exercises</li> <li>9. Project Work</li> <li>10. Project Exhibitions</li> <li>11. Technical Festivals</li> </ol>
23	<p><b>Assessment and Grading</b></p> <ol style="list-style-type: none"> <li>1. Every course will be assessed for a weight of 100</li> <li>2. There are two components-Component-1 and Component-2</li> <li>3. Component-1 carries a weight of 50% and Component -2 carries a weight of 50%</li> <li>4. Component-1(CE) is subdivided into Tests and Assignments, tests carry 25% weight and assignment carry 25% weight.</li> <li>5. Component-2 is a written examination(SEE) carries 50% weight</li> <li>6. Laboratory Examination will have two components: Component-1(CE):Conduction of Laboratory Exercises and Submission of Report:50%weight Component-2:SEE(Semester End Laboratory Examination):50%weight</li> <li>7. A minimum of overall 40% is required for a pass with 40% in each of the Components</li> <li>8. The marks distribution for each course is given in the programme structure- section20</li> <li>9. Other flexibilities (exceptions) are as per the Academic Regulations of B.Tech. Programme.</li> </ol>
24	<p><b>Attendance</b> A minimum of 85% attendance is compulsory to appear for semester end examinations. Condoning of attendance shortage is as per the Academic Regulations of B.Tech. Programme.</p>
25	<p><b>Award of Class</b>  As per the Academic Regulations of B.Tech. Programme</p>
26	<p><b>Student Support for Learning</b></p> <ol style="list-style-type: none"> <li>1. Course Notes</li> <li>2. Reference Books in the Library</li> <li>3. Magazines and Journals</li> <li>4. Internet Facility</li> <li>5. Computing Facility</li> <li>6. Laboratory Facility</li> <li>7. Workshop Facility</li> <li>8. Staff Support</li> <li>9. Lounges for Discussions</li> <li>10. Any other support that enhances their learning</li> </ol>

27	<b>Quality Control Measures</b> <ol style="list-style-type: none"><li>1. Review of Course Notes</li><li>2. Review of Question Paper sand Assignment Questions</li><li>3. Student Feedback</li><li>4. Moderation of Assessed Work</li><li>5. Opportunities for students to see their assessed work</li><li>6. Review by external examiners and external examiners reports</li><li>7. Staff Student Consultative Committee meetings</li><li>8. Student exit feedback</li><li>9. Subject Assessment Board(SAB)</li><li>10. Programme Assessment Board(PAB)</li></ol>
----	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Course Code						Intended Learning Outcomes											
						Knowledge and Understanding				Cognitive (Thinking) Skills (Critical, Analytical,				Practical skills			
HSC	BSC	ESC	ASC	OEC	MCC	KU1	KU2	KU3	KU4	CS1	CS2	CS3	CS4	PS1	PS2	PS3	PS4
a	b	c	d	e	f												
101B	101A	101A	201A	401A	101B	bcd	cd	cd	cd	d	d	d					
102B	102B	102A	202A	402A	102A	bc	bc	bc	bc						d	d	d
201A	103B	103A	MEC202A	403A	201B	cd	cd	d	d			d	d	b			
301A	104A	104A	AUC203A	404A		bd	d	d	d	d	d	d	d	c			
	105B	105A	AUC204A			b								c	d		
	106B	106A	AUC205A			cd	d							b	bd		
	207A	107A	203A			bcd	cd	cd	cd	d	d	d	d				
	208A	108A	MEC201A			cd	bcd	cd	d	d	d	d					
		109A	AUC206A			d	d	d	d			d	d				c
		110A	205A											d	cd	cd	cd
		201A	AUC207A			d	cd	d	cd				d				
		202A	204A											c	cd	d	
			MEC204A												d	d	
			206A												d		d
			301A			d	d	d	d	d	d	d	d				
			303A			d	d	d	d	d	d	d	d				
			MEC303A			d	d	d	d	d	d	d	d				
			305A			d	d	d	d	d	d	d	d				
			306A			d	d	d	d	d	d	d	d				
			302A												d		d
			304A												d		d
			AUC309A											d	d	d	d
			MEC308A												d	d	d
			307A			d	d	d	d	d	d	d	d				
			AUC403A			d	d	d	d	d	d	d	d				
			308A			d	d	d	d	d	d	d	d				
			309A			d	d	d	d	d	d	d	d				
			311A			d	d	d	d	d	d	d	d				
			310A												d	d	d
			312A														d
			401A			d	d	d	d	d	d	d	d				
			402A			d	d	d	d	d	d	d	d				
			404A			d	d	d	d	d	d	d	d				
			403A												d		d
			405A												d	d	
			406A			d	d	d									
			ASE1A*														
			ASE2A*														
			P31A			d	d	d	d	d	d	d	d	d	d	d	d
			P42A			d	d	d	d	d	d	d	d	d	d	d	d
<b>08</b>	<b>26</b>	<b>30</b>	<b>118</b>	<b>12</b>	<b>06</b>	<b>Total 200 credits</b>											

\*Depends on elective Course chosen

29	Capability / Transferable Skills Map															
	Course Code						Skills									
	HSC a	BSC b	ESC c	ASC d	OEC e	MCC f	GK	SL	WC	OC	P	B	IM	PM	L	AO
	101B	101A	101A	201A	401A	101B	abcdef	abcdef	abcdef	f	f	af	abcdef	abcdef	f	a
	102B	102B	102A	202A	402A	102A	abcdef	abcdef	abcdef	abcdef	a	a	abcdef	abcdef	af	af
	201A	103A	103A	MEC202A	403A	201B	abcdef	abcdef	abcdef	b		af	abcdef	abcdef		a
	301A	104A	104A	AUC203A	404A		abcde	abcde	abcde	c		a	abcde	abcde		a
		105B	105A	AUC204A			bcd	bcd	bcd	cd			bcd	bcd		
		106A	106A	AUC205A			bcd	bcd	bcd	bd			bcd	bcd		
		207A	107A	203A			bcd	bcd	bcd	d			bcd	bcd		
		208A	108A	MEC201A			bcd	bcd	bcd	cd			bcd	bcd		
			109A	AUC206A			cd	cd	cd	c			cd	cd		
			110A	205A			cd	cd	cd	cd			cd	cd		
			201A	AUC207A			cd	cd	cd	d			cd	cd		
			202A	204A			cd	cd	cd	cd			cd	cd		
				MEC204A			d	d	d	d			d	d		
				206A			d	d	d	d			d	d		
				301A			d	d	d				d	d		
				303A			d	d	d				d	d		
				MEC303A			d	d	d				d	d		
				305A			d	d	d				d	d		
				306A			d	d	d				d	d		
				302A			d	d	d	d			d	d		
				304A			d	d	d	d			d	d		
				AUC309A			d	d	d	d			d	d		
				MEC308A			d	d	d	d			d	d		
				307A			d	d	d				d	d		
				AUC403A			d	d	d				d	d		
				308A			d	d	d				d	d		
				309A			d	d	d				d	d		
				311A			d	d	d				d	d		
				310A			d	d	d	d			d	d		
				312A			d	d	d	d			d	d		
				401A			d	d	d				d	d		
				402A			d	d	d				d	d		
				404A			d	d	d	d			d	d		
				403A			d	d	d	d			d	d		
				405A			d	d	d	d			d	d		
				406A			d	d	d	d	d	d	d	d		
				ASE1A*			d	d	d				d	d		
				ASE2A*			d	d	d				d	d		
				P31A			d	d	d	d	d	d	d	d	d	d
				P42A			d	d	d	d	d	d	d	d	d	d
<b>GK: Group Work, SL: Self Learning, WC: Written Communication, OC: Oral Communication, P: Presentation, B: Behavioral, IM: Information Management, PM: Personal Management, L: Leadership, AO: Any Other</b>																
30	<b>Co-curricular Activities</b> Students are encouraged to take part in co-curricular activities like seminars, conferences, symposia, paper writing, attending industry exhibitions, project competitions and related activities for enhancing their knowledge and networking.															
31	<b>Cultural and Literary Activities</b> Annual cultural festivals are held to showcase the creative talents in students. They are involved in planning and organizing the activities.															
32	<b>Sports and Athletics</b> Students are encouraged to take part in sports and athletic events regularly. Annual sports meet will be held to demonstrate sportsmanship and competitive spirit.															